Derivative Formulas

General Rules

$$\frac{d}{dx}[f(x)+g(x)] = f'(x)+g'(x)$$

$$\frac{d}{dx}[f(x)-g(x)] = f'(x)-g'(x)$$

$$\frac{d}{dx}[cf(x)] = cf'(x)$$

$$\frac{d}{dx}[f(g(x))] = f'(g(x))g'(x)$$

$$\frac{d}{dx}[f(x)g(x)] = f'(x)g(x)+f(x)g'(x)$$

$$\frac{d}{dx}\left[\frac{f(x)}{g(x)}\right] = \frac{f'(x)g(x)-f(x)g'(x)}{[g(x)]^2}$$

Power Rules

$$\frac{d}{dx}(x^n) = nx^{n-1}$$

$$\frac{d}{dx}(c) = 0$$

$$\frac{d}{dx}(cx) = c$$

$$\frac{d}{dx}(\sqrt{x}) = \frac{1}{2\sqrt{x}}$$

Exponential

$$\frac{d}{dx}[e^x] = e^x$$

$$\frac{d}{dx}[a^x] = a^x \ln a$$

$$\frac{d}{dx}\left[e^{u(x)}\right] = e^{u(x)}u'(x)$$

$$\frac{d}{dx}\left[e^{rx}\right] = r\,e^{rx}$$

Trigonometric

$$\frac{d}{dx}(\sin x) = \cos x$$

$$\frac{d}{dx}(\cos x) = -\sin x$$

$$\frac{d}{dx}(\tan x) = \sec^2 x$$

$$\frac{d}{dx}(\cot x) = -\csc^2 x$$

$$\frac{d}{dx}(\sec x) = \sec x \tan x$$

$$\frac{d}{dx}(\csc x) = -\csc x \cot x$$

Inverse Trigonometric

$$\frac{d}{dx}(\sin^{-1} x) = \frac{1}{\sqrt{1-x^2}}$$

$$\frac{d}{dx}(\cos^{-1} x) = -\frac{1}{\sqrt{1-x^2}}$$

$$\frac{d}{dx}(\tan^{-1} x) = \frac{1}{1+x^2}$$

$$\frac{d}{dx}(\cot^{-1} x) = -\frac{1}{1+x^2}$$

$$\frac{d}{dx}(\sec^{-1} x) = \frac{1}{|x|\sqrt{x^2-1}}$$

$$\frac{d}{dx}(\csc^{-1} x) = -\frac{1}{|x|\sqrt{x^2-1}}$$

Hyperbolic

$$\frac{d}{dx}(\sinh x) = \cosh x$$

$$\frac{d}{dx}(\cosh x) = \sinh x$$

$$\frac{d}{dx}(\tanh x) = \operatorname{sech}^2 x$$

$$\frac{d}{dx}(\coth x) = -\operatorname{csch}^2 x$$

$$\frac{d}{dx}(\operatorname{sech} x) = -\operatorname{sech} x \tanh x$$

$$\frac{d}{dx}(\operatorname{csch} x) = -\operatorname{csch} x \coth x$$

Inverse Hyperbolic

$$\frac{d}{dx}(\sinh^{-1} x) = \frac{1}{\sqrt{1+x^2}}$$

$$\frac{d}{dx}(\cosh^{-1} x) = \frac{1}{\sqrt{x^2-1}}$$

$$\frac{d}{dx}(\tanh^{-1} x) = \frac{1}{1-x^2}$$

$$\frac{d}{dx}(\coth^{-1} x) = \frac{1}{1-x^2}$$

$$\frac{d}{dx}(\operatorname{sech}^{-1} x) = -\frac{1}{x\sqrt{1-x^2}}$$

$$\frac{d}{dx}(\operatorname{csch}^{-1} x) = -\frac{1}{|x|\sqrt{x^2+1}}$$

Table of Integrals

Forms Involving $a + bu$

1. $\displaystyle\int \frac{1}{a+bu}\,du = \frac{1}{b}\ln|a+bu| + c$

2. $\displaystyle\int \frac{u}{a+bu}\,du = \frac{1}{b^2}(a+bu-a\ln|a+bu|) + c$

3. $\displaystyle\int \frac{u^2}{a+bu}\,du = \frac{1}{2b^3}[(a+bu)^2 - 4a(a+bu) + 2a^2\ln|a+bu|] + c$

4. $\displaystyle\int \frac{1}{u(a+bu)}\,du = \frac{1}{a}\ln\left|\frac{u}{a+bu}\right| + c$

5. $\displaystyle\int \frac{1}{u^2(a+bu)}\,du = \frac{b}{a^2}\ln\left|\frac{a+bu}{u}\right| - \frac{1}{au} + c$

Forms Involving $(a + bu)^2$

6. $\displaystyle\int \frac{1}{(a+bu)^2}\,du = \frac{-1}{b(a+bu)} + c$

7. $\displaystyle\int \frac{u}{(a+bu)^2}\,du = \frac{1}{b^2}\left(\frac{a}{a+bu} + \ln|a+bu|\right) + c$

8. $\displaystyle\int \frac{u^2}{(a+bu)^2}\,du = \frac{1}{b^3}\left(a+bu - \frac{a^2}{a+bu} - 2a\ln|a+bu|\right) + c$

9. $\displaystyle\int \frac{1}{u(a+bu)^2}\,du = \frac{1}{a(a+bu)} + \frac{1}{a^2}\ln\left|\frac{u}{a+bu}\right| + c$

10. $\displaystyle\int \frac{1}{u^2(a+bu)^2}\,du = \frac{2b}{a^3}\ln\left|\frac{a+bu}{u}\right| - \frac{a+2bu}{a^2u(a+bu)} + c$

Forms Involving $\sqrt{a + bu}$

11. $\displaystyle\int u\sqrt{a+bu}\,du = \frac{2}{15b^2}(3bu-2a)(a+bu)^{3/2} + c$

12. $\displaystyle\int u^2\sqrt{a+bu}\,du = \frac{2}{105b^3}(15b^2u^2 - 12abu + 8a^2)(a+bu)^{3/2} + c$

13. $\displaystyle\int u^n\sqrt{a+bu}\,du = \frac{2}{b(2n+3)}u^n(a+bu)^{3/2} - \frac{2na}{b(2n+3)}\int u^{n-1}\sqrt{a+bu}\,du$

14. $\displaystyle\int \frac{\sqrt{a+bu}}{u}du = 2\sqrt{a+bu} + a\int \frac{1}{u\sqrt{a+bu}}\,du$

15. $\displaystyle\int \frac{\sqrt{a+bu}}{u^n}\,du = \frac{-1}{a(n-1)}\frac{(a+bu)^{3/2}}{u^{n-1}} - \frac{(2n-5)b}{2a(n-1)}\int \frac{\sqrt{a+bu}}{u^{n-1}}\,du,\ n \neq 1$

16a. $\displaystyle\int \frac{1}{u\sqrt{a+bu}}\,du = \frac{1}{\sqrt{a}}\ln\left|\frac{\sqrt{a+bu}-\sqrt{a}}{\sqrt{a+bu}+\sqrt{a}}\right| + c,\ a > 0$

16b. $\displaystyle\int \frac{1}{u\sqrt{a+bu}}\,du = \frac{2}{\sqrt{-a}}\tan^{-1}\sqrt{\frac{a+bu}{-a}} + c,\ a < 0$

17. $\displaystyle\int \frac{1}{u^n\sqrt{a+bu}}\,du = \frac{-1}{a(n-1)}\frac{\sqrt{a+bu}}{u^{n-1}} - \frac{(2n-3)b}{2a(n-1)}\int \frac{1}{u^{n-1}\sqrt{a+bu}}\,du,\ n \neq 1$

18. $\displaystyle\int \frac{u}{\sqrt{a+bu}}\,du = \frac{2}{3b^2}(bu-2a)\sqrt{a+bu} + c$

19. $\displaystyle\int \frac{u^2}{\sqrt{a+bu}}\,du = \frac{2}{15b^3}(3b^2u^2-4abu+8a^2)\sqrt{a+bu} + c$

20. $\displaystyle\int \frac{u^n}{\sqrt{a+bu}}\,du = \frac{2}{(2n+1)b}u^n\sqrt{a+bu} - \frac{2na}{(2n+1)b}\int \frac{u^{n-1}}{\sqrt{a+bu}}\,du$

Forms Involving $\sqrt{a^2+u^2}$, $a > 0$

21. $\displaystyle\int \sqrt{a^2+u^2}\,du = \tfrac{1}{2}u\sqrt{a^2+u^2} + \tfrac{1}{2}a^2\ln\left|u+\sqrt{a^2+u^2}\right| + c$

22. $\displaystyle\int u^2\sqrt{a^2+u^2}\,du = \tfrac{1}{8}u(a^2+2u^2)\sqrt{a^2+u^2} - \tfrac{1}{8}a^4\ln\left|u+\sqrt{a^2+u^2}\right| + c$

23. $\displaystyle\int \frac{\sqrt{a^2+u^2}}{u}\,du = \sqrt{a^2+u^2} - a\ln\left|\frac{a+\sqrt{a^2+u^2}}{u}\right| + c$

24. $\displaystyle\int \frac{\sqrt{a^2+u^2}}{u^2}\,du = \ln\left|u+\sqrt{a^2+u^2}\right| - \frac{\sqrt{a^2+u^2}}{u} + c$

25. $\displaystyle\int \frac{1}{\sqrt{a^2+u^2}}\,du = \ln\left|u+\sqrt{a^2+u^2}\right| + c$

26. $\displaystyle\int \frac{u^2}{\sqrt{a^2+u^2}}\,du = \frac{1}{2}u\sqrt{a^2+u^2} - \frac{1}{2}a^2\ln\left|u+\sqrt{a^2+u^2}\right| + c$

27. $\displaystyle\int \frac{1}{u\sqrt{a^2+u^2}}\,du = \frac{1}{a}\ln\left|\frac{u}{a+\sqrt{a^2+u^2}}\right| + c$

28. $\displaystyle\int \frac{1}{u^2\sqrt{a^2+u^2}}\,du = -\frac{\sqrt{a^2+u^2}}{a^2u} + c$

Forms Involving $\sqrt{a^2-u^2}$, $a > 0$

29. $\displaystyle\int \sqrt{a^2-u^2}\,du = \tfrac{1}{2}u\sqrt{a^2-u^2} + \tfrac{1}{2}a^2\sin^{-1}\frac{u}{a} + c$

30. $\displaystyle\int u^2\sqrt{a^2-u^2}\,du = \tfrac{1}{8}u(2u^2-a^2)\sqrt{a^2-u^2} + \tfrac{1}{8}a^4\sin^{-1}\frac{u}{a} + c$

31. $\displaystyle\int \frac{\sqrt{a^2-u^2}}{u}\,du = \sqrt{a^2-u^2} - a\ln\left|\frac{a+\sqrt{a^2-u^2}}{u}\right| + c$

32. $\displaystyle\int \frac{\sqrt{a^2-u^2}}{u^2}\,du = -\frac{\sqrt{a^2-u^2}}{u} - \sin^{-1}\frac{u}{a} + c$

33. $\displaystyle\int \frac{1}{\sqrt{a^2-u^2}}\,du = \sin^{-1}\frac{u}{a} + c$

34. $\displaystyle\int \frac{1}{u\sqrt{a^2-u^2}}\,du = -\frac{1}{a}\ln\left|\frac{a+\sqrt{a^2-u^2}}{u}\right| + c$

35. $\displaystyle\int \frac{u^2}{\sqrt{a^2-u^2}}\,du = -\frac{1}{2}u\sqrt{a^2-u^2} + \frac{1}{2}a^2\sin^{-1}\frac{u}{a} + c$

36. $\displaystyle\int \frac{1}{u^2\sqrt{a^2-u^2}}\,du = -\frac{\sqrt{a^2-u^2}}{a^2u} + c$

Forms Involving $\sqrt{u^2-a^2}$, $a > 0$

37. $\displaystyle\int \sqrt{u^2-a^2}\,du = \tfrac{1}{2}u\sqrt{u^2-a^2} - \tfrac{1}{2}a^2\ln\left|u+\sqrt{u^2-a^2}\right| + c$

38. $\displaystyle\int u^2\sqrt{u^2-a^2}\,du = \tfrac{1}{8}u(2u^2-a^2)\sqrt{u^2-a^2} - \tfrac{1}{8}a^4\ln\left|u+\sqrt{u^2-a^2}\right| + c$

39. $\displaystyle\int \frac{\sqrt{u^2-a^2}}{u}\,du = \sqrt{u^2-a^2} - a\sec^{-1}\frac{|u|}{a} + c$

40. $\displaystyle\int \frac{\sqrt{u^2-a^2}}{u^2}\,du = \ln\left|u+\sqrt{u^2-a^2}\right| - \frac{\sqrt{u^2-a^2}}{u} + c$

41. $\displaystyle\int \frac{1}{\sqrt{u^2-a^2}}\,du = \ln\left|u+\sqrt{u^2-a^2}\right| + c$

42. $\displaystyle\int \frac{u^2}{\sqrt{u^2-a^2}}\,du = \frac{1}{2}u\sqrt{u^2-a^2} + \frac{1}{2}a^2\ln\left|u+\sqrt{u^2-a^2}\right| + c$

43. $\displaystyle\int \frac{1}{u\sqrt{u^2-a^2}}\,du = \frac{1}{a}\sec^{-1}\frac{|u|}{a} + c$

44. $\displaystyle\int \frac{1}{u^2\sqrt{u^2-a^2}}\,du = \frac{\sqrt{u^2-a^2}}{a^2u} + c$

Forms Involving $\sqrt{2au-u^2}$

45. $\displaystyle\int \sqrt{2au-u^2}\,du = \frac{1}{2}(u-a)\sqrt{2au-u^2} + \frac{1}{2}a^2\cos^{-1}\left(\frac{a-u}{a}\right) + c$

46. $\displaystyle\int u\sqrt{2au-u^2}\,du = \frac{1}{6}(2u^2-au-3a^2)\sqrt{2au-u^2} + \frac{1}{2}a^3\cos^{-1}\left(\frac{a-u}{a}\right) + c$

47. $\displaystyle\int \frac{\sqrt{2au-u^2}}{u}\,du = \sqrt{2au-u^2} + a\cos^{-1}\left(\frac{a-u}{a}\right) + c$

48. $\displaystyle\int \frac{\sqrt{2au-u^2}}{u^2}\,du = -\frac{2\sqrt{2au-u^2}}{u} - \cos^{-1}\left(\frac{a-u}{a}\right) + c$

49. $\displaystyle\int \frac{1}{\sqrt{2au-u^2}}\,du = \cos^{-1}\left(\frac{a-u}{a}\right) + c$

50. $\displaystyle\int \frac{u}{\sqrt{2au-u^2}}\,du = -\sqrt{2au-u^2} + a\cos^{-1}\left(\frac{a-u}{a}\right) + c$

51. $\displaystyle\int \frac{u^2}{\sqrt{2au-u^2}}\,du = -\frac{1}{2}(u+3a)\sqrt{2au-u^2} + \frac{3}{2}a^2\cos^{-1}\left(\frac{a-u}{a}\right) + c$

52. $\displaystyle\int \frac{1}{u\sqrt{2au-u^2}}\,du = -\frac{\sqrt{2au-u^2}}{au} + c$

Forms Involving $\sin u$ OR $\cos u$

53. $\displaystyle\int \sin u\,du = -\cos u + c$

54. $\displaystyle\int \cos u\,du = \sin u + c$

55. $\displaystyle\int \sin^2 u\,du = \tfrac{1}{2}u - \tfrac{1}{2}\sin u\cos u + c$

56. $\displaystyle\int \cos^2 u\,du = \tfrac{1}{2}u + \tfrac{1}{2}\sin u\cos u + c$

57. $\displaystyle\int \sin^3 u\,du = -\tfrac{2}{3}\cos u - \tfrac{1}{3}\sin^2 u\cos u + c$

58. $\displaystyle\int \cos^3 u\,du = \tfrac{2}{3}\sin u + \tfrac{1}{3}\sin u\cos^2 u + c$

59. $\displaystyle\int \sin^n u\,du = -\frac{1}{n}\sin^{n-1} u\cos u + \frac{n-1}{n}\int \sin^{n-2} u\,du$

60. $\displaystyle\int \cos^n u\,du = \frac{1}{n}\cos^{n-1} u\sin u + \frac{n-1}{n}\int \cos^{n-2} u\,du$

61. $\displaystyle\int u\sin u\,du = \sin u - u\cos u + c$

62. $\displaystyle\int u\cos u\,du = \cos u + u\sin u + c$

63. $\displaystyle\int u^n \sin u\,du = -u^n\cos u + n\int u^{n-1}\cos u\,du + c$

64. $\displaystyle\int u^n \cos u\,du = u^n\sin u - n\int u^{n-1}\sin u\,du + c$

65. $\displaystyle\int \frac{1}{1+\sin u}\,du = \tan u - \sec u + c$

66. $\displaystyle\int \frac{1}{1-\sin u}\,du = \tan u + \sec u + c$

67. $\displaystyle\int \frac{1}{1+\cos u}\,du = -\cot u + \csc u + c$

68. $\displaystyle\int \frac{1}{1-\cos u}\,du = -\cot u - \csc u + c$

69. $\displaystyle\int \sin(mu)\sin(nu)\,du = \frac{\sin(m-n)u}{2(m-n)} - \frac{\sin(m+n)u}{2(m+n)} + c$

70. $\displaystyle\int \cos(mu)\cos(nu)\,du = \frac{\sin(m-n)u}{2(m-n)} + \frac{\sin(m+n)u}{2(m+n)} + c$

71. $\displaystyle\int \sin(mu)\cos(nu)\,du = \frac{\cos(n-m)u}{2(n-m)} - \frac{\cos(m+n)u}{2(m+n)} + c$

72. $\displaystyle\int \sin^m u\cos^n u\,du = -\frac{\sin^{m-1} u\cos^{n+1} u}{m+n} + \frac{m-1}{m+n}\int \sin^{m-2} u\cos^n u\,du$

Forms Involving Other Trigonometric Functions

73. $\displaystyle\int \tan u\,du = -\ln|\cos u| + c = \ln|\sec u| + c$

74. $\displaystyle\int \cot u\,du = \ln|\sin u| + c$

75. $\displaystyle\int \sec u\,du = \ln|\sec u + \tan u| + c$

76. $\displaystyle\int \csc u\,du = \ln|\csc u - \cot u| + c$

77. $\displaystyle\int \tan^2 u\,du = \tan u - u + c$

78. $\displaystyle\int \cot^2 u\,du = -\cot u - u + c$

79. $\displaystyle\int \sec^2 u\,du = \tan u + c$

80. $\displaystyle\int \csc^2 u\,du = -\cot u + c$

81. $\displaystyle\int \tan^3 u\,du = \tfrac{1}{2}\tan^2 u + \ln|\cos u| + c$

82. $\displaystyle\int \cot^3 u\,du = -\tfrac{1}{2}\cot^2 u - \ln|\sin u| + c$

83. $\displaystyle\int \sec^3 u\,du = \tfrac{1}{2}\sec u\tan u + \tfrac{1}{2}\ln|\sec u + \tan u| + c$

84. $\displaystyle\int \csc^3 u\,du = -\tfrac{1}{2}\csc u\cot u + \tfrac{1}{2}\ln|\csc u - \cot u| + c$

85. $\displaystyle\int \tan^n u\,du = \frac{1}{n-1}\tan^{n-1} u - \int \tan^{n-2} u\,du,\ n \neq 1$

86. $\displaystyle\int \cot^n u\,du = -\frac{1}{n-1}\cot^{n-1} u - \int \cot^{n-2} u\,du,\ n \neq 1$

87. $\displaystyle\int \sec^n u\,du = \frac{1}{n-1}\sec^{n-2} u\tan u + \frac{n-2}{n-1}\int \sec^{n-2} u\,du,\ n \neq 1$

88. $\displaystyle\int \csc^n u\,du = -\frac{1}{n-1}\csc^{n-2} u\cot u + \frac{n-2}{n-1}\int \csc^{n-2} u\,du,\ n \neq 1$

89. $\displaystyle\int \frac{1}{1 \pm \tan u}\,du = \tfrac{1}{2}u \pm \ln|\cos u \pm \sin u| + c$

90. $\displaystyle\int \frac{1}{1 \pm \cot u}\,du = \tfrac{1}{2}u \mp \ln|\sin u \pm \cos u| + c$

91. $\displaystyle\int \frac{1}{1 \pm \sec u}\,du = u + \cot u \mp \csc u + c$

92. $\displaystyle\int \frac{1}{1 \pm \csc u}\,du = u - \tan u \pm \sec u + c$

Forms Involving Inverse Trigonometric Functions

93. $\displaystyle\int \sin^{-1} u\,du = u \sin^{-1} u + \sqrt{1 - u^2} + c$

94. $\displaystyle\int \cos^{-1} u\,du = u \cos^{-1} u - \sqrt{1 - u^2} + c$

95. $\displaystyle\int \tan^{-1} u\,du = u \tan^{-1} u - \ln\sqrt{1 + u^2} + c$

96. $\displaystyle\int \cot^{-1} u\,du = u \cot^{-1} u + \ln\sqrt{1 + u^2} + c$

97. $\displaystyle\int \sec^{-1} u\,du = u \sec^{-1} u - \ln|u + \sqrt{u^2 - 1}| + c$

98. $\displaystyle\int \csc^{-1} u\,du = u \csc^{-1} u + \ln|u + \sqrt{u^2 - 1}| + c$

99. $\displaystyle\int u \sin^{-1} u\,du = \tfrac{1}{4}(2u^2 - 1)\sin^{-1} u + \tfrac{1}{4}u\sqrt{1 - u^2} + c$

100. $\displaystyle\int u \cos^{-1} u\,du = \tfrac{1}{4}(2u^2 - 1)\cos^{-1} u - \tfrac{1}{4}u\sqrt{1 - u^2} + c$

Forms Involving e^u

101. $\displaystyle\int e^{au}\,du = \frac{1}{a}e^{au} + c$

102. $\displaystyle\int ue^{au}\,du = \left(\frac{1}{a}u - \frac{1}{a^2}\right)e^{au} + c$

103. $\displaystyle\int u^2 e^{au}\,du = \left(\frac{1}{a}u^2 - \frac{2}{a^2}u + \frac{2}{a^3}\right)e^{au} + c$

104. $\displaystyle\int u^n e^{au}\,du = \frac{1}{a}u^n e^{au} - \frac{n}{a}\int u^{n-1}e^{au}\,du$

105. $\displaystyle\int e^{au}\sin bu\,du = \frac{1}{a^2 + b^2}(a \sin bu - b \cos bu)e^{au} + c$

106. $\displaystyle\int e^{au}\cos bu\,du = \frac{1}{a^2 + b^2}(a \cos bu + b \sin bu)e^{au} + c$

Forms Involving $\ln u$

107. $\displaystyle\int \ln u\,du = u \ln u - u + c$

108. $\displaystyle\int u \ln u\,du = \tfrac{1}{2}u^2 \ln u - \tfrac{1}{4}u^2 + c$

109. $\displaystyle\int u^n \ln u \, du = \frac{1}{n+1} u^{n+1} \ln u - \frac{1}{(n+1)^2} u^{n+1} + c$

110. $\displaystyle\int \frac{1}{u \ln u} \, du = \ln |\ln u| + c$

111. $\displaystyle\int (\ln u)^2 \, du = u(\ln u)^2 - 2u \ln u + 2u + c$

112. $\displaystyle\int (\ln u)^n \, du = u(\ln u)^n - n \int (\ln u)^{n-1} \, du$

Forms Involving Hyperbolic Functions

113. $\displaystyle\int \sinh u \, du = \cosh u + c$

114. $\displaystyle\int \cosh u \, du = \sinh u + c$

115. $\displaystyle\int \tanh u \, du = \ln (\cosh u) + c$

116. $\displaystyle\int \coth u \, du = \ln |\sinh u| + c$

117. $\displaystyle\int \operatorname{sech} u \, du = \tan^{-1} |\sinh u| + c$

118. $\displaystyle\int \operatorname{csch} u \, du = \ln |\tanh \tfrac{1}{2} u| + c$

119. $\displaystyle\int \operatorname{sech}^2 u \, du = \tanh u + c$

120. $\displaystyle\int \operatorname{csch}^2 u \, du = -\coth u + c$

121. $\displaystyle\int \operatorname{sech} u \tanh u \, du = -\operatorname{sech} u + c$

122. $\displaystyle\int \operatorname{csch} u \coth u \, du = -\operatorname{csch} u + c$

123. $\displaystyle\int \frac{1}{\sqrt{a^2 + 1}} \, da = \sinh^{-1} a + c$

124. $\displaystyle\int \frac{1}{\sqrt{a^2 - 1}} \, da = \cosh^{-1} a + c$

125. $\displaystyle\int \frac{1}{1 - a^2} \, da = \tanh^{-1} a + c$

126. $\displaystyle\int \frac{1}{|a| \sqrt{a^2 + 1}} \, da = -\operatorname{csch}^{-1} a + c$

127. $\displaystyle\int \frac{1}{a \sqrt{1 - a^2}} \, da = -\operatorname{sech}^{-1} a + c$